Wisconsin Urban & Community Forests

A Quarterly Newsletter of the Wisconsin Department of Natural Resources, Forestry Division

Firewise in the Wildland-Urban Interface

by Jolene Ackerman
Wildland-Urban Interface Coordinator
DNR Division of Forestry

Experienced forest firefighters know that many parts of the state are overdue for "the big one," such as the recent 3400-acre wildfire that destroyed 90 buildings in Adams County. Unaccustomed to wildfire, people in the path of one react with disbelief. They don't want to evacuate; some even refuse. They don't understand how fast wildfire moves, figuring they have time to gather up valuables, check on a neighbor, maybe even shower before they *really* have to leave. Suddenly, they're driving through flames. Like a scene from *Bambi*, animals flee, crossing roads in herds. When the last ember is extinguished, some people are shocked to realize they were living in a fire-prone area. Some are grateful to the firefighters. Some are looking for someone to blame. A few realize that their wildfire preparations paid off.

Many native ecosystems evolved with and depend on fire. The tall-grass prairies of southern Wisconsin burned every 2 to 10 years. In the north, red pine groves are adapted to fires every 50 to 100 years. Long-lived hemlock–yellow birch forests have a fire regime that can exceed 200 years. But European settlers viewed wildfires as a menace and extinguished them whenever possible. Human activity continues to disrupt natural burning cycles. Ecosystems falter, forest health declines and vegetative fuels proliferate. When overdue for cleansing, forests can burn more intensely than during natural burning cycles.

For most of the 20th century, housing was concentrated in urban areas. The latter part of the century saw people moving to the suburbs. During the last 20 to 30 years, development has moved deeper into formerly rural areas, in housing clusters or as scattered individual homes. In addition, higher disposable incomes allow people to vacation more and build seasonal homes. Such development in formerly agricultural, grassland, marshland and forested areas complicates natural resource management. The presence of homes in this wildland–urban interface dramatically changes the dynamics of fire suppression efforts.

Photo from www.wildlandfire.com

In many such areas, it's not a matter of *whether* a fire will occur, but *when*. Accordingly, the task is teaching residents and visitors how to avoid starting wildfires, how to protect their property from wildfire and how to survive a wildfire when one occurs.

What Does This Have to Do with Urban Forestry?

Blurred lines between city and country have brought traditionally separate entities closer together. Fire departments are increasingly trained in wildland firefighting. Wildland firefighters help evacuate

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Robert Skiera, longtime City of Milwaukee forester and the impetus for a radical new approach to urban forestry, died July 29 at his central Wisconsin family farm. Read Dave Liska's tribute to Bob on page 14.

WISCONSIN DEPT. OF NATURAL RESOURCES

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Inside this issue:

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Community Profile:

City of Algoma

by Gary Paape
Superintendent of Public Works

Community Profile:

Tree City USA: Since 2001

Population: 3357

Street Tree Population: 1192

Park Tree Population: 381

Total Park Acreage: 55

Miles of Street: 22

Program Profile:

Tree Management Committee:

- Paula Levy, Chair
- Barb Rodgers
- Joe Walag
- Mary Kostichka
- Gary Paape

Staff:

- 5 full-time public works employees

Equipment:

- Brush chipper
- Skid steer 24" with a 24" auger
- 1600 gallon water truck
- Loader
- Dump truck

2004 Program Statistics:

- Trees Planted: 52
- Trees Removed: 8
- 2004 Operating Budget:
- $24,000

The small lakeshore community of Algoma wasn't always known by that name. In fact, Algoma is a relatively new name for the city. The first settlement, established in 1851 by Irish and English pioneers, was called Wolf River. This was a loose translation from the Native American word An-Ne-Pe which meant "land of the great gray wolf," a legendary animal in stories told by the Potawatomi Indians. The spelling was eventually changed to Ahnapee. In 1879, the city was formally renamed Algoma, another Native American word meaning "park of flowers."

This quaint community nestled along the shores of Lake Michigan has a lot to offer. Tourism has grown tremendously since 1980, capitalizing on the fantastic fishing and the natural beauty of the lake. Known as the salmon and trout capital of the Midwest, Algoma boasts a strong and vital charter fishing industry. A new marina project, new visitor information center, beachfront boardwalk and downtown redevelopment project have brought a renewed spark to this historic community.

Algoma's blossoming urban forestry program began in 2000 with the formation of the Tree Management Committee. The goal of the committee was to protect one of the city's greatest assets, street trees. The committee's first project was to review the city ordinances and tree management issues. In the past, trees were pruned and removed by private owners

Photo by Tracy Salisbury, WDNR

during construction. The health and type of tree were not taken into consideration during removal, nor were the trees replaced. Trees were also being topped due to conflicts with utility lines. Today, the city does its own pruning, removal and replacement of trees.

Through DNR urban forestry grants and budgeting by public works, the city has created a program that captures the interest of residents. In 2001 Algoma received an urban forestry grant to hire a consultant to conduct a tree inventory, develop a management plan, educate residents through tree care workshops and revise the city tree ordinance. That year the city inventoried all of the street, park and cemetery trees.

The Tree Management Committee has started three pilot programs. The first is called the Under Line Tree Project that is done in partnership with Algoma Utility. This program started in 2003 with the goal to remove street trees interfering with utility lines and replace them with low-growing trees. The following year, the project continued with a highly visible

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Send your inquiries, address changes, or story ideas to Dick Rideout, richard.rideout@dnr.state.wi.us (608/267-0843) or Katherine Esposito, katherine.esposito@dnr.state.wi.us (608/267-0568)

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Contributors: Cindy Casey, Don Kissinger, Jeff Roe, Tracy Salisbury, Kim Sebastian, Kristina Skowronski and Olivia Witthun.

Articles, news items, photos and ideas are welcome.

This newsletter is available in alternative format upon request and can also be downloaded in PDF format from our Web site: http://dnr.wi.gov/org/land/forestry/UF/

For breaking UF news, anecdotes, announcements and networking opportunities, sign up for The Urban Forestry Insider, DNR's twice-monthly e-newsletter. Archives are at http://dnr.wi.gov/org/land/forestry/UF/resources/InsiderArchive.html

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Project Profile:

Urban Forestry Grant Helps Middleton Design Oak Savanna Restoration Plan

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by Tracey Teodecki, Grant Coordinator
DNR Division of Forestry

While the city of Middleton has completed plans for managing its parks, the forestry committee realized they didn't have management plans for any of the conservancy lands the city owned. So the Conservancy Lands Committee was formed to take on that effort. The committee chose to begin by writing a management plan for the conservancy property at the Middleton Hills subdivision—at five acres, it's one of the city's larger conservancy properties. They knew that the area had originally been an oak savanna, but the ecosystem was changing as more and more trees became established, and they wanted to reverse that trend. In 2004, the city applied for an Urban Forestry grant to help cover the expense of hiring a consultant to help them gather information and write the plans.

The city solicited bids for a consultant to write the plan and hired Biological Environmental Consulting, owned by Mike Anderson. The proposal submitted by BEC included completing an assessment of the current condition of the Middleton Hills site, an inventory of the vegetation, and the development of a restoration and management plan for the savanna. An interpretive sign and informational brochure were also developed.

To get a thorough understanding of conditions at the site, BEC used aerial photographs from 1930 to the present. The photographs illustrated how the site had changed incrementally over the years. BEC also began to inventory the vegetation, and actually completed an inventory three times during the growing season to be sure to identify all the species on the site. BEC found 144 different plant species, of which 99 were native.

During this time, as the background information for the plan was being developed, Anderson presented an educational brochure to the city with information on oak savanna history and ecology, and the management activities that might occur at Middleton Hills. Providing this type of information often prevents citizen concerns about tree and brush removal, and frequently leads to greater public support and involvement. This conservancy area is surrounded on three sides by houses, and a city park borders it on the fourth side. Next, BEC organized a walk-and-talk outing for interested neighbors and citizens. Anderson led a group of people through the site recounting the history of the land, describing the characteristics of a savanna ecosystem and identifying specific plants. The neighborhood newsletter also carried an article about the restoration project.

Interpretive sign

The final plan identified four goals for the five-acre savanna and several specific management recommendations, including prescribed burning, removal of exotic ground species, oak regeneration, suggestions for the inclusion of volunteers, and short- and long-term monitoring of the savanna. The city then took over implementation of the plan, and a prescribed burn was conducted during the summer of 2004. While the conservancy area presently looks like a wooded upland, the city now has a management plan in place to guide them in the restoration of the oak savanna ecosystem.


The Middleton Hills oak savanna.

Photos courtesy of BioLogic Environmental Consulting, LLC

Firewise in the Wildland-Urban Interface

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communities and assist with structural protection during wildfires. In the wildland–urban interface, urban foresters and arborists may be asked for recommendations on landscaping, landscape management, chain saw safety, woodland health and pruning. So, it's beneficial to become familiar with Firewise principles.

Firewise is a proactive approach that puts the primary responsibility for wildfire readiness on individual citizens and on community infrastructure. Safer community design and effective emergency response are more easily planned at the local level. Individual homeowners are best suited to prepare their property for wildfire *before* one strikes.

Firewise considers:

- Structures. How flammable is the residence and outbuildings?
- Surrounding vegetation. How easily could fire spread from the vegetation to the buildings?
- Access. Could firefighters get to the residence?

Firewise recommendations pertain to the Home Ignition Zone, an area extending 100 to 200 feet beyond each side of *all* structures on a property. Vegetation in this zone should be managed as a fuel break to increase the chance of structures surviving a wildfire without outside help. Within this zone, fuels in three main areas should be modified:

Photo from www.wildlandfire.com

The Structure and Just Beyond
Consider flammability of the structure, remembering that anything *attached* to it is part of the structure. Roofs, rain gutters, fences and decks are natural traps for leaves, pine needles and burning embers. These areas should be kept free of all material that could allow embers to smolder and ignite. It is especially important to keep debris out from under decks as well as on top.

In the wildland–urban interface, the first 3 to 5 feet around all structures should be kept free of flammable materials. Think of this as the No-Grow Zone. Even wood mulch, which normally stays moist, can dry out sufficiently during fire weather to become a fuel source if burning embers land on it and for this reason should be kept away from siding or replaced with decorative stone or some other non-flammable material.

Defensible Space
Defensible space is the area within approximately 30 feet of all structures. If modified properly, this area can keep low-intensity surface fire from reaching structures. It can also provide a relatively safe area for firefighters protecting the structure. This area should be kept mowed short, raked of fallen leaves and needles, and green throughout the growing season. Plantings should be well spaced and fire-resistive. Deciduous plants are generally more fire-resistive than evergreens. Fuel breaks can be created by incorporating gravel, rock, brick, paving or a water feature into the landscape design. Tree limbs should be pruned back at least 10 feet from all structures. Conifers should be pruned up 6 to 10 feet from the ground. Firewood and other flammable materials should be kept out of this zone.

Outlying Areas
This zone extends 30 to 100 feet beyond structures; to 200 feet if the structure is in a pine forest or plantation. Tree limbs in this zone should be at least 10 feet apart and taller trees should have all limbs pruned within 6 feet of the ground. All dead or dying limbs within tree canopies should be removed. Dead, dying and diseased trees should also be removed from this area. Encourage people to talk to their neighbors about Firewise landscaping. Wildfire doesn't respect property boundaries. By working together, wildfire risk can be reduced even further.

The Importance of Maintenance

Once fuels have been reduced in the Home Ignition Zone, the focus shifts to maintenance. Encourage residents to keep a schedule of seasonal maintenance for cleaning roofs and gutters and raking leaves and needles. Because spring is when most Wisconsin wildfires occur, cleanup at this time of year is essential. Cleanup should *not* include debris burning, however! Composting is a much safer and environmentally compatible alternative.

Firewise Communities USA Recognition Program

Communities that lower their wildfire risk can earn national recognition. The Firewise Communities USA program started on a trial basis in 2000 with seven pilot communities. In 2002, the program was rolled out nationwide. Modeled after the hugely successful Tree City USA program, there are currently 112 participating communities, including one in Wisconsin—Crystal Lake Club, in Marquette County. The community's interest in the Firewise recognition

program was prompted by the Crystal Lake Fire on April 14, 2003, which ignited just across the road from CLC Association property.

Crystal Lake Club residents worked with DNR forestry staff and the Neshkoro Fire Department to conduct a wildfire hazard assessment and develop a safety plan, which residents then implemented. An official plaque and recognition materials were presented Memorial Day weekend in 2004.

Crystal Lake Club qualified as a Firewise Community with these actions:

With the local fire department, CLC inspected properties, driveways and roads for accessibility to fire fighting equipment. Trees with potential to impede access were marked for removal.

DNR forestry staff conducted a wildfire hazard assessment based on flammability of structures and surrounding vegetation, and the ability of firefighters to reach structures. The written assessment was presented to Crystal Lakes' Firewise board.

Based on the assessment and fire department recommendations, the Firewise board created a plan with solutions the community would implement.

During winter months, trees were removed to improve access along roads and driveways. The tree removal also reduced the amount of fuel that could carry a fire to lakefront homes.

In May 2004, Crystal Lake held a cleanup day, which included breaking down several tons of tree stems and branches with the help of a wood chipper, DNR staff and the Neshkoro Fire Department. This method of breaking down woody debris was a fire prevention measure in itself, because debris burning is the number one cause of wildfires in Wisconsin.

Achieving Firewise recognition is neither quick nor easy. Crystal Lake Club has done an outstanding job creating a local Firewise board and implementing Firewise principles. By preparing homes, outbuildings and landscapes *before* a wildfire occurs, Crystal Lake Club has dramatically increased the likelihood that homes will be protected when a wildfire occurs.

The Firewise Communities USA recognition program is of particular interest to small communities and neighborhood associations willing to implement tailored programs to lower their wildfire risk. Communities create the programs themselves with cooperative assistance from state forestry agencies and local fire departments.

For more information, click on www.firewise.org or www.dnr.wi.gov/org/land/forestry/fire.

Editor's note:
National Firewise Home Page Manager Judith Leraas Cook offered this response to the question, "Have any of your methods been tested in a real fire? In other words, have you proven that they work?"

As you know, the Firewise Communities/USA program and much of the other Firewise material is very concerned with the home ignition zone, or the 100 to 150 around a person's home. The home ignition zone principally determines the potential for home ignitions during a wildland fire and includes a house and its immediate surroundings within 100 to 150 feet. A house burns because of its interrelationship with everything in its surrounding home ignition zone. To avoid a home ignition, the homeowner must eliminate a wildfire's potential relationship with his/her house. This can be accomplished by interrupting the natural path a fire takes—a relatively simple task. Flammable items such as dead vegetation must be removed from the area immediately around the house to prevent flames from contacting it. Also, reducing the volume of live vegetation will affect the intensity of the wildfire as it enters the home ignition zone.

To this point, none of our communities have been involved in a fire. In Arizona, the community of Timber Ridge was threatened by wildfire in 2000 and was evacuated for three days. Homeowners there were told that because of their clearing efforts, the fire department felt it could enter the homeowners association safely, should the fire threaten it specifically.

An anecdote: Last week, I stayed at a home that survived California's Cedar Fire. I had stayed there several years before and been concerned with the amount of vegetation in close proximity to the structure. At that time, I noted that it had cement (Hardiplank) siding and a metal roof. When the Cedar Fire threatened, the homeowner took out his chipper and began chipping everything that might be in the fire's path. He left with the evacuation order, abandoning his chipper. The chipper melted; the home was undamaged. His neighbor's home burned to the ground.

The home ignition zone concept is based on physics. Fire cannot burn where the requirements for combustion are not met. We are making every effort to help people to assimilate that concept.

Judith Leraas Cook

Community Tree Profile:

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Bitternut Hickory (Yellow-bud Hickory)

(Carya cordiformis)

by Laura G. Jull
Dept. of Horticulture
University of Wisconsin–Madison

Native To: Eastern and central US, southeastern Canada, especially along stream banks; native to Wisconsin

Mature Height: 60-80' or more

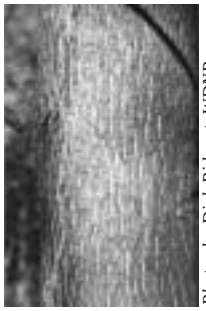
Spread: 40-50'

Form: Narrow to upright-oval, symmetrical form, straight trunk, ascending, arching branches, medium texture

Growth Rate: Moderate, but one of the fastest growing hickories

Foliage: Alternate, pinnately compound, 6- to 10"-long leaves with 5-9 or more leaflets, somewhat shiny in appearance. Each leaflet is oblong to lanceolate, 4-7" long, almost sessile (almost directly attached without a petiolule) with serrated (toothed) margins and narrower leaflets than other hickories. The petiole and rachis (stalk with leaflets attached) is slightly pubescent, especially when young. Midvein in the leaflets is falcate (sickle-shaped) which causes the leaflets to curve outwards. Unlike shagbark hickory (*Carya ovata*), the terminal leaflet in bitternut hickory is seldom larger than the upper pair of lateral leaflets.

The fruit and leaves of the bitternut hickory.



Photos by Dick Rideout, WDNR

Bark of the bitternut hickory.

Buds and Stems: Terminal bud is very distinctive and is the best identification characteristic. The terminal bud is naked, 1/2" long, slender, pointed, flattened and valvate (like a duck's bill) with a bright sulfur-yellow coating. Buds are very different than shagbark hickory buds, which are large, egg-shaped, scaled, without the yellow coating. Twigs are stout, pubescent (fuzzy) when young becoming smooth, slightly ridged, grayish-brown with brownish-white pith.

Fall Color: Showy, bright golden-yellow, early in fall

Flowers: Not showy, monoecious; in early spring, males are borne on yellowish-green, pendulous, 3-branched catkins; female flowers are produced in yellowish-green, terminal spikes containing 2-5 individual flowers.

Fruit: Nut produced in late summer to fall, either solitary or in clusters, on the inside of a 2" large, thin, yellowish-brown, 4-valved, almost winged husk that splits open when mature. Husk is not as thick as shagbark hickory husks. Nut is brown, football-shaped, hard-shelled. Nut can be cracked open and the "meat" inside used in candy and cookies but is very bitter, unlike shagbark hickory nuts. Nut litter can be messy but fruit attracts birds and mammals.

Photo by Ed Hasselkus

Bitternut hickory tree.

Bark: Ashy-gray, tight, hard bark with small, flattened, interlacing ridges. Bark is not shaggy like shagbark hickory bark.

Site Requirements: Tolerates most soils but prefers a moist, deep, well-drained soil; pH adaptable, full sun.

Hardiness Zone: 4b–8b

Insect & Disease Problems: Not as susceptible as shagbark hickory to leaf diseases but can get anthracnose, Gnomonia leaf spot, fall webworm, hickory borer, twig girdler, walnut caterpillar, but usually not serious. Sapsuckers can damage bark of trees.

Suggested Applications: Bitternut hickory is a beautiful, large, native tree with lacy textured leaves and excellent fall color that casts light shade. Suitable for lawns, parks or naturalized areas.

Limitations: Fruit litter can become a problem, especially if used as a street tree. Tree produces some levels of juglone, but nowhere the levels produced in walnuts. Tree has a large taproot and is difficult to transplant, hence plant in spring.

Comments: Bitternut hickory is a showy, noninvasive, native Wisconsin shade tree that can be

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Urban Tree Health Matters:

Shining the Spotlight on Leaf Tatters

by Jayesh B. Samtani, Graduate Research Assistant; John B. Masiunas, Associate Professor; James E. Appleby, Associate Professor of Agriculture, Department of Natural Resources and Environmental Sciences, University of Illinois

White oak (*Quercus alba*) and bur oak (*Quercus macrocarpa*) are valuable landscape, lumber and forest species native to eastern North America. White oak is highly sought for its splendor in landscapes and for its utility for lumber. Bur oak is widely recommended in the Midwest for use in urban areas because of its tolerance to compacted soils, poor drainage, droughty conditions and air pollution.

However, oak species face many problems in the Midwest. One problem of major concern is leaf tatters, a condition that gives the leaves a tattered appearance.

The problem of leaf tatters has been reported for almost two decades on oaks in Illinois and neighboring states, including Indiana, Iowa, Michigan, Minnesota, Missouri, Ohio and Wisconsin. The condition occurs specifically on white oak and related species in the white oak group. The symptoms begin with the death of some interveinal leaf tissues (Figure 1), eventually leaving only the main leaf veins with little interveinal tissues present (Figure 2). An oak tree showing such symptoms is said to have developed leaf tatters.

Photo by James Appleby

Figure 1. Symptoms begin with death of some interveinal leaf tissues.

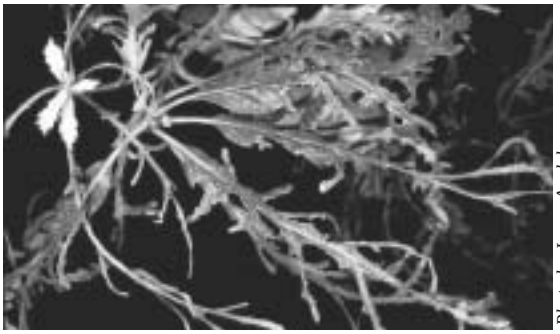

Photo by James Appleby

Figure 2. White oak in the landscape showing severe symptoms of leaf tatters.

The symptoms of leaf tatters on individual trees and in a geographic area can reoccur over multiple years, but not necessarily every year. Leaf tatters results in reduced photosynthesis due to loss of leaf tissue. Tattered trees probably become weakened when the stored food reserves are reduced, when a second flush of leaves is produced in early summer. This causes the trees to become stressed.

Our study indicates the cause of leaf tatters on white oak is exposure to chloroacetanilide herbicide drift during the leaf unfolding stage. Treatments in our study were spray applications of 2,4-D ester, 2,4-D ester + glyphosate, acetochlor + atrazine, dicamba, glyphosate and metolachlor. The herbicides were applied at three growth stages: (i) swollen bud, (ii) leaves unfolding (Figure 3), and (iii) expanded leaves (Kolb and Tuelon, 1991). Three concentrations, at 1/4X, 1/10X and 1/100X of the field use rate, were used.

Leaf tatters were observed on seedlings treated with acetochlor + atrazine or metolachlor at concentrations as low as 1/100X concentrations (Figure 4) of the field use rate, at the leaves unfolding stage. Seedlings treated at the swollen bud stage or when the leaves were fully expanded were not injured by metolachlor

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Figure 3. The leaves unfolding stage, when oak is susceptible to injury from chloroacetanilide herbicides, resulting in leaf tatters.

What Damaged This Tree?

Photo by Tara Jovanovich, Wauwatosa Forestry

Turn to page 15 to find out . . .

Shining the Spotlight on Leaf Tatters

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or acetochlor + atrazine. In both years, the oak seedlings produced a new flush of leaves starting 55 to 60 days after treatment at the leaves unfolding stage. The new flush of leaves was normal.

Acetochlor and metolachlor have the same mode and site of action on plants and belong to the chloroacetanilide group of herbicides. These herbicides affect germinating seeds or very small seedlings. Chloroacetanilide herbicides inhibit very-long-chain fatty acids and lipid or wax biosynthesis. The loss of these very-long-chain fatty acids stops the biosynthesis and function of the plasma membrane and, because cell integrity is lost, leads to death of the plant. The unfolding leaves of the oak could be anatomically very similar to small seedlings, thus explaining the injury.

Photo by James Appleby

Figure 4. Injury on white oak from metolachlor at 1/100X of the field use rate.

In a second study in 2005, an additional chloroacetanilide herbicide, dimethenamid, was used. White and red oak seedlings were treated with acetochlor, metolachlor and dimethenamid with and without atrazine, at the leaf unfolding stage. Three concentrations were used at 1/4X, 1/10X and 1/100X of the field use rate. Leaf tatters were seen on both white and red oak seedlings (Figure 5) treated with acetochlor, metolachlor and dimethenamid with and without atrazine. Seedlings treated with atrazine did not produce leaf tatters. However, atrazine can cause small areas of interveinal tissue to yellow and die, resulting in small holes in the leaves. This could potentially aggravate the leaf tatter problem when atrazine is used in combination with chloroacetanilide herbicides.

Photo by James Appleby

Figure 5. Injury on red oak from metolachlor at 1/4X of the field use rate.

Pesticide drift problems are common in Midwestern United States. These problems are prominent where home gardens are close to agricultural fields or in areas where residential developments are encroaching on farmland. In spring, there is often an overlap in time between herbicide applications on farms and when tree leaves are unfolding. Due to widespread usage of the chloroacetanilide herbicides in the field, it may be difficult to avoid leaf tatter injury. For homeowners, friendly communication with neighboring farmers is a key to avoiding drift. Since acetochlor and metolachlor are registered for use on landscape plants in nurseries, nurserymen should exercise caution and not use these herbicides when oak leaves are beginning to unfold.

Acknowledgment: This study is funded by the USDA Forest Service.

Coming Events

October 4-5, 2005 – *Level II Tree Climbing Methods & Best Practices*, Madison, WI. Contact ArborMasters at 860-429-5028 or Info@ArborMaster.com or www.arbormaster.com/home.htm.

October 6-7, 2005 – *Level I Arborist Rigging Applications*, Madison, WI. Contact ArborMasters at 860-429-5028 or Info@ArborMaster.com or www.arbormaster.com/home.htm.

October 18, 2005 – *Wisconsin Arborist Association Fall Seminar*, Sheraton Hotel, Madison, WI. Contact Mark Freberg at markfr@ci.green-bay.wi.us or 920-448-3379.

October 19-20, 2005 – *Green Makeover - Retrofitting Sites in Urban Areas to Enrich City Environments*, University of Wisconsin-Milwaukee School of Continuing Education Conference Center, Milwaukee, WI. Contact Jim Van der Kloot, US EPA, at 312-353-3161 or Dreux Watermolen, Wisconsin DNR, at 608-266-8931 or http://128.248.232.70/glakes/ce/courseDetail.asp?GID=319.

November 8, 2005 – *TCIA Tree Care Academy Advanced Courses*, Greater Columbus Convention Center, Columbus, OH. Contact TCIA at 800-733-2622 or www.tcia.org.

November 9-11, 2005 – *TCI Expo*, Greater Columbus Convention Center, Columbus, OH. Contact TCIA at 800-733-2622 or www.tcia.org.

Urban Forest Insect Pests:

June Beetles and White Grubs

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by Linda Williams, Forest Health Specialist
DNR Northeast Region

You might be wondering why this "forest insects" article is covering June beetles and white grubs since they obviously don't affect trees, right? Actually, both the adults and the larvae feed on trees!

June beetles, sometimes called May beetles or Junebugs, are large, bumbling, brown beetles that emerge in late May or early June and are attracted to lights, which is where most people see them, either buzzing into the light or littering the ground underneath the light. But these large insects have a hidden side. Under the cover of darkness the adult beetles are defoliators of trees! Their favorite trees to feed on seem to be oaks but they can feed on the leaves of other species of ornamental and shade trees as well. Since they feed at night, often congregating in trees near lights, they can do significant damage during the darkness, disappearing as morning nears and leaving your tree mysteriously defoliated.

Photo by Linda Williams, WDNR

Adult June beetle

The adult beetles lay eggs in the soil. These eggs hatch into what we commonly call white grubs. All beetles in the *Phyllophaga* genus, commonly known as the scarab beetles, have larvae that are white grubs. June beetle larvae remain in the ground for two years in this part of the country. While living underground they feed on roots of grasses, weeds, shrubs and trees. White grubs feeding on the roots of newly established trees and shrubs can cause significant damage to the root system, causing dieback and sometimes death of the tree or shrub. White grubs are a favorite snack for skunks. If you've ever had your lawn ripped up during the night it may very well have been skunks rummaging for white grubs.

June beetle larvae–white grub

Photo by Clemson University Cooperative Extension

Controlling white grubs in the ground may make the difference between life and death of your newly planted tree or shrub. There are many pesticide formulations available for white grub control and these are readily available at most places that sell pesticides. Controlling the adult beetles is a different story. Because the adults can fly to your house from surrounding areas it is difficult to control them with pesticides; the best control may be to turn off your outside lighting at the time when adults are flying so that you don't attract them to your property.

November 10, 2005 - *Trees And Planting: Getting the Roots Right*, The Morton Arboretum, Lisle IL. Contact: The Morton Arboretum at 630-719-2468 or www.mortonarb.org ⇒ Education ⇒ Course Information & Registration ⇒ For Class Descriptions & Online Registration ⇒ The Vanishing Oaks and Professional Seminars ⇒ Fall 2005 Vanishing Oak and Professional Seminars ⇒ SE111-Trees and Planting.

November 14-16, 2005 - Designing Bio/Infiltration Best Management Practices for Stormwater Quality Improvement - Porous Pavement, Rain Gardens, Swales and Trenches, Madison, WI. Contact Engineering Registration at 800-462-0876 or http://epd.engr.wisc.edu/webH211.

November 17-18, 2005 - *National Urban Forest Conference*, The Westin-Charlotte, Charlotte, NC. Contact www.americanforests.org/conference/.

November 30, 2005 - *Wisconsin Urban Forestry Council meeting*, Prairie Oak State Office Building, Madison, WI. Contact Dick Rideout, 608-267-0843 or richard.rideout@dnr.state.wi.us.

February 5-7, 2006 – *Wisconsin Urban Forestry Conference and Wisconsin Arborist Association Annual Conference and Trade Show*, Regency Suites and KI Convention Center, Green Bay, WI. Contact Mark Freberg at markfr@ci.green-bay.wi.us or 920-448-3379.

If there is a meeting, conference, workshop or other event you would like listed here, please contact Dick Rideout at 608-267-0843 with the information.

Urban Wildlife:

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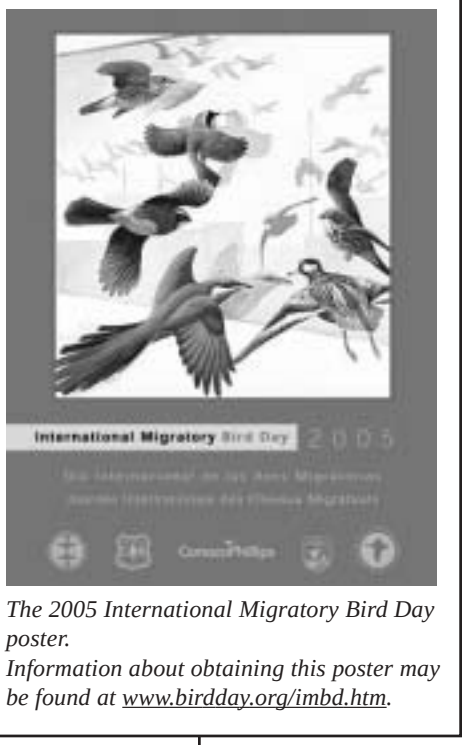
International Migratory Bird Day

by Ricky Lien
DNR Urban Wildlife Specialist
Bureau of Wildlife Management

International Migratory Bird Day was May 14th and by now I assume the boxes of IMBD decorations have been stored somewhere between the boxes of Christmas tree decorations and the plastic Halloween pumpkins. And your kids have probably finally finished off the last of the treats they got while going door-to-door dressed as their favorite bird. And maybe the office has quit talking about your antics at the office IMBD party.



The 2005 International Migratory Bird Day poster.
Information about obtaining this poster may be found at www.birdday.org/imbd.htm.

Well, maybe IMBD doesn't get quite that level of celebration in your house and office, but in my world it would sure be nice if it did. As stated on its Web site, www.birdday.org/imbd.htm, IMBD "was created in 1993 by visionaries at the Smithsonian Migratory Bird Center and the Cornell Laboratory of Ornithology. Now under the direction of the National Fish and Wildlife Foundation and US Fish and Wildlife Service, IMBD continues to focus attention on one of the most important and spectacular events in the life of a migratory bird—its journey between its summer and winter homes. Today, it is celebrated in Canada, the US, Mexico and Central America through bird festivals and bird walks, education programs and Bird Day!" There were numerous events in Wisconsin.

Each year the IMBD features a theme and this year it was "Collisions: Clear the Way for Birds." Collisions with manmade obstacles account for a huge loss of birdlife, estimated to be in the billions of birds annually! These collisions can occur from anything manmade that sticks above the ground, but certain structures pose more of a problem than others—communication towers, cars and power lines to name a few. But the number one thing that kills more birds than any other human-related factor—birds running into glass. Noted ornithologist David Sibley estimates that up to almost a billion birds could be killed annually from window strikes. The problem results from birds either not perceiving the clear window in their path or seeing a reflection in the glass that makes it appear to be a safe place to go. Have you ever been in your living room and heard a bird smack into that big picture window? That's just the birdstrike you heard. And chances are, if you happened to hear one birdstrike there were others that occurred when you weren't around. And don't think that the lack of dead bird bodies is an indication of no problem—the crows, gulls, feral cats, etc., make up a very effective morgue detail. And now multiply the problem by all the millions of homes out there, all with multiple windows.

And don't think major commercial buildings are blameless. Just because they're big doesn't mean the birds avoid them. The windows on them are just as much a problem and sometimes the lights they leave on at night attract birds and contribute to the birdstrike problems. One estimate suggests that almost 12,000 birds were killed by birdstrikes in Chicago during annual migration periods.

So what can be done? The means to alleviate avian birdstrike mortality range from the simple to complex.

People used to put decals on windows to try reduce birdstrikes. It turns out they aren't that effective, though they may be better than nothing. A better alternative involves putting strips of tape on the outside of the glass or hanging stings or feathers outside the window no more than ten inches apart.

Screens on the outside of windows act to both block the reflection of windows and to cushion the impact of birds.

Stained glass windows or window dividers make windows easier for birds to see.

Place bird feeders within two feet of—or farther than thirty feet from—windows.

Support programs to reduce building lights at night time. Not only does this help reduce birdstrikes, it can save energy and reduce light pollution.

Support bird-friendly architecture. Large windows slanted slightly towards the ground reduces their reflectivity. Large expanses of mirrored glass are a definite no-no. Even the siting of buildings in certain locations can determine if they will be prone to birdstrikes.

I was reading an article the other day about bird migration and some of the more spectacular ones that cover thousands of miles. The thought of a bird making that sort of trek only to meet an ignominious end by smacking into a window is sad.

Organization Profile:

Greening Milwaukee

by Kristina Skowronski
DNR Southeast Region

Greening Milwaukee is a nonprofit organization dedicated to the development and preservation of trees. In the 1960s the city of Milwaukee lost over 200,000 trees to the Dutch elm epidemic. Although many trees on public property were replanted, many on private property were not.

The Mayor's Beautification Committee was established in 1964 to enhance the overall quality of life for Milwaukee residents. It was composed of 100 women volunteers, ages 20 to 84, whose goal was to enhance and preserve the natural beauty of Milwaukee. Greening Milwaukee eventually evolved to take its place. It was officially founded in 1996 by Milwaukee City Forester Preston Cole.

Trees currently make up just 16 percent of the city's canopy cover. The organization's goal is to increase canopy cover to 40 percent. Greening Milwaukee reestablishes urban greenery by working with community groups and individual citizens to plant hundreds of trees throughout the spring and fall.

Greening Milwaukee's programs include:

Adopt-a-Tree. Greening Milwaukee developed a creative solution to address the lack of canopy on private properties in the city. The Adopt-a-Tree program enables residents in the city to plant trees in their yards. To be eligible, one must reside in the city, own space suitable for a tree to grow and be willing to be trained on proper planting and care. Once those terms have been met, Greening Milwaukee will conduct a lot evaluation, recommend a species and placement, contact Diggers Hotline, and supply the tree.

Greening Milwaukee Schools. Greening Milwaukee has also partnered with Milwaukee Public Schools and the city's forestry division to help plant trees at Milwaukee's schools. The program concentrates on elementary school playgrounds. Asphalt is replaced with landscaping—including trees—to ease storm water runoff and provide shade areas for the children.

Tree Gift Program. For a small donation, Greening Milwaukee will plant a tree in the city as a living memorial for a loved one. Contributors also receive a bookmark and certificate noting the contribution.

Mayor's Landscape Awards. Each spring, Greening Milwaukee hosts the Mayor's Landscape Awards. Anybody can nominate a landscape and virtually anyone—including homeowners, churches, businesses, and organizations—are eligible to receive one. A total of 43 awards are given, two from each aldermanic district. Pictures of the winning landscapes can be viewed on Greening Milwaukee's Web site (see below).

Greening Milwaukee is highly successful in attracting grant money to support its programs. One recent $150,000 grant from the USDA Forest Service will investigate how to make parking lots more pervious to water. A second grant, this one for $350,000, will further general goals of planting more city trees—3000 total—in private yards and school lots. The grant was supported by US Senator Herb Kohl and US Congresswoman Gwen Moore and now awaits a presidential signature.

Greening Milwaukee's success is owed partly to the many volunteers who participate in its core programs. Volunteers and external partners participate in a variety of greening and recognition activities with the organization, including the Mayor's Landscape Awards, the Adopt-a-Tree Initiative, Greening Milwaukee's school program, the city–county holiday tree and the Tree Gift Program.

Greening Milwaukee also provides ample information to the community. With recent urban forestry grants from the DNR urban forestry program, Greening Milwaukee has developed a tree care CD and tree resource guide outlining basic tree care concepts and procedures for homeowners. Other resources they provide include "Right Tree for the Right Location" literature, a tree planting video/CD and tree posters.

For more information on Greening Milwaukee's programs, or on how to become a volunteer, visit www.greeningmilwaukee.org/.

Photo by Greening Milwaukee

Students from Hawley Elementary School, a Greening Milwaukee school, plant a honeylocust tree for Arbor Day. Ms. Eleanor Bower, urban tree nursery coordinator, assisted students.

Create Your Own News

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Submitted by Tracy Salisbury, DNR Northeast Region; adapted from "Best of Nonprofit Nuts & Bolts" in the Free Articles section of Nuts & Bolts Publishing Inc.'s Web site, www.nutsbolts.com.

Nowadays it seems like you need to have some type of headline grabbing news to get noticed by your local media. Many of you are doing fabulous things for your community, but not getting recognized for it. If you would like your tree board to receive more media coverage, don't wait until you've got a groundbreaking story. Create your own news instead. Answer the following questions to generate some fresh ideas about media relations opportunities within your organization:

- Did you produce a new tree planting brochure or provide a new service like a memorial tree program?
- Is there a current event (either locally or nationally) that affects your tree board?
- Has your community been hit by a recent windstorm and residents need tree care information or how to select a reputable tree care company?
- Did your community receive a DNR Urban Forestry grant?
- Did you receive a large donation to plant trees in a local park?
- Is there an insect or disease problem affecting local trees?
- Did you have a new member join your tree board?
- Would your tree inventory results be of interest to the community?
- Did you give a speech at a business meeting or community function?
- Are you conducting a special event like a tree care workshop or a tree giveaway?
- Did the tree board or a board member receive an award?

This list represents just a few ideas of how to create newsworthy news to spark media interest. Also, it never hurts to have friends in high places. Find out who writes environmental stories, arrange a meeting and show up on time. Let the media know who you are and what you do. Find someone who shares your passion for trees or be prepared to tell them why they should care. When you do make the paper or are interviewed by a local radio station, make sure you send a thank-you note or give them a call and let them know you really appreciate their time and attention.

City of Algoma *continued from page 2*

seven-block area along one of the main entrances to the city. This year the program will include park trees and will be completed in 2006. Already, indications are that there will be a substantial reduction in tree maintenance costs for both the public works department and Algoma Utility.

The second pilot project is a tribute tree program. The goal of this program is to increase public awareness of the importance of trees. This program encourages residents to sponsor trees for planting in public places in honor or memory of someone or simply to donate a tree. The Tribute Tree, a large plaque in the shape of a tree, is located at city hall. In recognition of a donation, a leaf with the person's name engraved on it is placed on the tribute tree.

The third pilot program is a partnership with the Algoma High School Environmental Sciences class. The goal is to create a nature education area on school property. The area will be utilized by all students, kindergarten through 12th grade. A consultant was hired in 2004 to develop a plan and in 2005 the plan is being implemented. The students have planted a variety of tree species creating an arboretum for the whole school to enjoy.

The city of Algoma celebrates Arbor Day in September by hosting an educational workshop on tree care for the public. At that time, residents may purchase trees from the city at a reduced price to plant on private property. The following spring, the public works department purchases the trees from the nursery and residents pick them up at the street department.

Algoma's forestry program has generated a great deal of public interest by educating residents on the importance of trees, both public and private, and how trees increase property value. This successful program is due to the steadfast commitment of the tree management committee and several urban forestry grants. To date, Algoma has received four Tree City USA Awards and three Growth Awards. The city is committed to keeping this program going and moving forward.

The Idea Exchange...

compiled by Olivia Witthun
DNR Northeast Region

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Does your community or organization have an idea, project or information that may be beneficial to others? Please let your regional urban forestry coordinator know. We will print as many of these as we can. If you see ideas you like here, give the contact person a call. They may be able to help you in your urban forestry efforts.

Plaques Promote Tree Ownership

The village of Rosendale's 2005 Arbor Day celebration involved tree planting by the 3rd grade class. The class was divided into small groups, each of which planted a tree. To give the students a stronger sense of ownership for the trees they would be planting, the students were made responsible for their trees over the next several years. A local artisan also made wooden plaques with the students' names engraved on them. This idea helps promote pride of ownership, makes the children more interested in proper planting and care, and helps ensure the trees are watered during dry spells.

TreePeople Gives Eco-tours

TreePeople, a California nonprofit organization, has a special eco-tour for elementary students. The goal of the tour is to teach children how they can help reconnect the natural forest with the urban forest. There are five eco-stations that participants visit during the tour to help them better understand trees, water, soil and air. In addition to this outdoor learning experience, teachers are given an age-appropriate curriculum packet with further ideas for hands-on learning. For more information, visit www.treepeople.org.

One More Reason to Plant Trees

The city of Sheboygan celebrated Join Hands Day by planting trees. The national event aims to unite young people and adults for the purpose of improving the community they live in. Cub Scouts, Girl Scouts and individuals volunteered to plant 475 tree and shrub seedlings at Ellwood H. May Environmental Park. Ten different species were planted, helping the park reach its goal of greater biodiversity. *Source: The Sheboygan Press,* May 8, 2005.

Revenue from Downed Trees

Wausau, Wisconsin, is doing its part to utilize municipal fallen trees and make money in the process. The city forester has several outlets for tree waste. A logger transports usable logs to sawmills for pulpwood and lumber. Additional wood waste is cut into firewood and sold at county campgrounds. Leftover waste is chipped and used by the city, residents and local businesses. Wausau has also traded lumber for labor. Sawmills turned trees into timber beams for the city to use in park projects. The sawmill kept some of the wood as payment. Firewood permits brought in additional money. Over the course of two years, the city generated $78,000 in revenue from municipal trees. *Info:* www.na.fs.fed.us/spfo/pubs/misc/umt/.

Research Notes:

Irrigation Effects on the Growth of Newly Planted Oaks (Quercus spp.)

by Laurence R. Costello[1], Katherine S. Jones[2] and Douglas D. McCreary[3]

The effect of irrigation on the growth of container-grown oaks was investigated over a four-year period. *Quercus lobata, Q. agrifolia* and *Q. douglasii* were irrigated at three levels of reference evapotranspiration after being established for one year at the University of California Bay Area Research and Extension Center in Santa Clara, California. Although no significant differences were found in trunk diameter growth for irrigation treatments after one year, growth of *Q. agrifolia* was significantly greater than *Q. lobata* and *Q. douglasii*. Root mass, shoot mass and root distribution were measured for *Q. agrifolia*, and mean shoot:root ratio was found to be 2.6 to 1. Many roots of *Q.agrifolia* were found to develop with a stronger vertical than horizontal orientation, and root distribution was not significantly affected by irrigation treatments.

[1]Environmental Horticulture Advisor, [2]Horticulture Associate, University of California Cooperative Extension, Half Moon Bay, California, [3]Natural Resource Specialist, Integrated Hardwood and Range Management Program, University of California, Sierra Foothill and Research Extension Center, Browns Valley, California

Reference: *Journal of Arboriculture 31(2), March 2005*

Council News:

Robert W. Skiera Dies at 73

by Dave Liska, Chairman
Wisconsin Urban Forestry Council

What can one say? The passing of Bob Skiera leaves an immense void in the world of urban forestry. He was an arboriculture icon, not only in Wisconsin and the Midwest, but also in the United States and internationally. For those who didn't know Bob, the following few paragraphs, taken from a family press release, will give you an idea of who he was:

"Bob Skiera, former City of Milwaukee Forester, died peacefully in his sleep at his central Wisconsin family farm Friday, July 29, 2005. Though retired since 1990, his name is still associated with the nationally acclaimed Milwaukee Bureau of Forestry, thanks to a high profile during his career.

Bob Skiera.
Photo by family of Robert Skiera

"After returning from military service in Korea, Bob started working as an arborist trainee in 1955. Over the next 19 years, he worked his way up the ranks, until appointed as city forester for Milwaukee, Wisconsin, in 1973. His 17 years in that position included a period of tremendous growth and devastation. At the same time Milwaukee's urban forest was experiencing tremendous growth, it also was ravaged by Dutch elm disease (DED).

"Bob was faced with removing diseased trees and replacing thousands of elms in a timely period. But the country was in the depths of a recession. One of his greatest challenges, and a contribution to the profession that gave Bob the most satisfaction, was being able to convince city policy makers to budget for the replacement and maintenance of trees, as well as removal funds. On the day prior to his passing, the headlines on the front page of *USA Today* read, "City Leaders Finding Money Does Grow on Trees." The article explains the many benefits tree cover provides to building better, healthier communities that Bob was a champion for since becoming city forester in 1973.

"The DED experience led Milwaukee to acquire one of the first computerized tree inventory programs and one of the first planting management programs. The latter was necessary to ensure sufficient diversity to avert future disasters like DED. Bob also worked closely with the Mayor's Beautification Commission for citizen input on replacement trees. This program led to Milwaukee being awarded one of the first Tree City USA designations.

"Another major contribution to the Milwaukee area was Bob's role in the development of the Milwaukee Summerfest grounds from an empty urban industrial area to a well-landscaped festival site. He was instrumental in planning, and participated in hands-on planting of demonstration gardens, through the cooperative effort of the Mayor's Beautification Committee, in supervising 1200 volunteer gardeners who were responsible for Summerfest plantings.

"Skiera's successes in Milwaukee made him a sought-after consultant and lecturer. He consulted with municipalities across the country and with the military on vegetation management at military installations. He worked with American Forests on their Cool Communities program and was an urban forestry adviser to the University of Wisconsin at Stevens Point and to the Milwaukee Area Technical College. Following retirement, although he curtailed his lecture and consulting schedule, Bob still found time to serve on the Governor's Forestry Council. He also became an expert on propagating and growing hostas. Known as "Hosta Bob" by members of the Southeast Wisconsin Hosta Society, he donated countless hours as a volunteer and lecturer at the Boerner Botanic Gardens.

"During his professional career he served as president of the International Society of Arboriculture, Municipal Arborists and Urban Foresters Association, Wisconsin Arborist Association and as vice president of American Forests, the nation's oldest conservation organization. For his untiring efforts Bob has been honored with awards from many green-industry organizations. The latest was the Student Society of Arboriculture's Roots of Our Being Award in 1998."

My first contact with Bob occurred in the early '70s when, as an erstwhile urban forestry student at the University of Wisconsin–Madison, I called the Milwaukee bureau of forestry to inquire about potential job prospects. After a number of transfers, I ultimately ended up talking to someone in forestry. Being wet-behind-the-ears, I anticipated only a short two- or three-minute conversation, as I was taking valuable time from a busy professional. Quite to the contrary!! To my surprise, I ended up talking (actually listening) for almost an hour. The gentleman I was conversing with was none other than Bob Skiera. I came away from that conversation fired up about a career. Bob's passion, drive and enthusiasm for urban trees were infectious.

Today, because of Bob's strong positive influence, there are myriad urban forestry professionals who are striving to carry forth his strong ideals.

For all whom he touched, we can only say, "Thank you, Bob!"

Urban Forestry Resources:

Managing Hazardous Trees

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compiled by Cindy Casey
DNR West Central Region

Looking to reduce risk from hazardous trees? A variety of resources can help you identify and manage trees at risk of structural failure.

📖 *Evaluating Tree Defects, 2nd edition*, Ed Hayes, 2001 — Sturdy, compact, spiral-bound field guide featuring 58 color photos and 43 illustrations. Includes a section on safety issues for arborists. Available for $21.95; ordering information at www.safetrees.com.

🌐 *The Hazard Tree Web Page*, USDA Forest Service, www.na.fs.fed.us/spfo/hazard/index.htm — Links to publications, images and general information about hazardous trees.

🌐 *How to Recognize Hazardous Defects in Trees*, USDA Forest Service, www.na.fs.fed.us/spfo/pubs/howtos/ht_haz/ht_haz.htm — Concise, on-line guide with excellent color photographs.

🌐 *How to Recognize and Reduce Tree Hazards in Recreation Sites*, USDA Forest Service, www.na.fs.fed.us/spfo/pubs/hazardtrees/recreation/index.htm — On-line guide includes basic identification, inspection recommendations, and forms for reporting tree failures and inspections. Includes hazard ratings by tree species and age.

🌐 💿 📖 *Urban Tree Risk Management*, USDA Forest Service, www.na.fs.fed.us/spfo/pubs/uf/utrmm/index.htm — Available on-line, as a CD or in hard copy. A very comprehensive guide designed not only to identify hazardous tree defects, but to help local governments design their own tree risk management program. Includes chapters on prevention and correction. Many useful tables and forms.

🌐 *Risk Tree Web Page*, Northeast Center for Urban and Community Forestry, www.umass.edu/urbantree/hazard/index.shtml — The page provides an on-line hazard tree textbook and a suggested tree risk rating system for municipal, recreation and transportation settings.

💻 COMING SOON! *Community Tree Risk Calculator for Pocket PCs*, USDA Forest Service and Northeast Center for Urban and Community Forestry, www.umass.edu/urbantree/hazard/pda.shtml — Currently under testing, the Community Tree Risk Calculator automates the risk rating system found in *Urban Tree Risk Management* with Pocket PC data collection software and a related PC desktop component. Latest version of the software can be downloaded and tested from links on the Web site.

Bitternut Hickory (Yellow-bud Hickory)

continued from page 6

used in landscapes or naturalized areas. It is less susceptible to foliar diseases compared to shagbark hickory and has a lacy texture in the summer with outstanding yellow fall color. Fruit attracts wildlife, especially squirrels and other mammals. The wood is very strong and is used for producing smoke that gives ham and bacon a hickory-smoked flavor.

Common Cultivars or Selections: None

References:

Manual of Woody Landscape Plants: Their Identification, Ornamental Characteristics, Culture, Propagation and Uses, 5th ed. 1998, by Michael A. Dirr, Stipes Publishing, Champaign, IL.

Native Trees for North American Landscapes, 2004, by Guy Sternberg with Jim Wilson, Timber Press, Portland, OR.

Trees of the Northern United States and Canada, by John L. Farrar, Iowa State Univ. Press, Ames, IA.

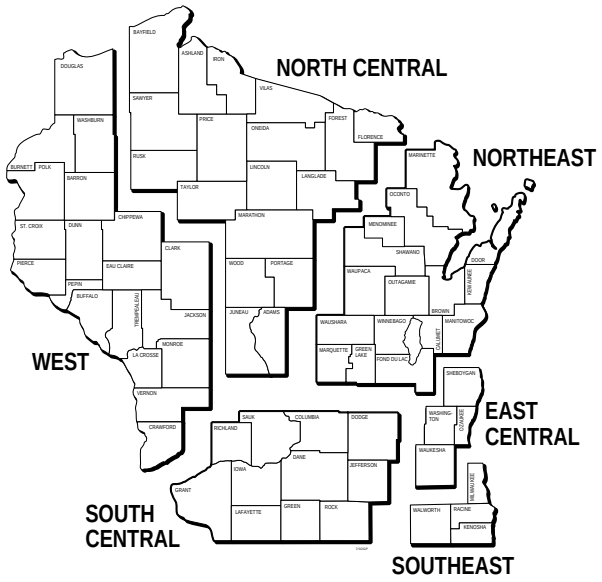
What Damaged This Tree?

Photo by Tara Jovanovich, Wauwatosa Forestry

Answer: For some unknown physiological reason, this Alberta spruce is reverting back to its original form, a white spruce.

Do you have pictures of tree damage others ought to know about? Send them to Kim Sebastian (address on page 16) and we'll print them here!

Wisconsin DNR Urban and Community Forestry Contacts



World Wide Web Site: www.dnr.state.wi.us/org/land/forestry/uf/

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